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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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21254	7590	08/17/2005	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			MAYO III, WILLIAM H	
			ART UNIT	PAPER NUMBER
			2831	

DATE MAILED: 08/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,055

Applicant(s)

SEXTON ET AL.

Examiner

William H. Mayo III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because Figures 1a-2b, 2e, 2f, and 3a-3w lack the proper cross-hatching, which indicates the type of materials, which may be in an invention. Specifically, the cross hatching to indicate the conductive and insulative materials is improper. The applicant should refer to MPEP Section 608.02 for the proper cross-hatching of materials. Correction is required.

Claim Objections.

2. Claim 40 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 33. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1-3, 7-9, 24-27, 30-32, and 34-37 are rejected under 35

U.S.C. 102(b) as being anticipated by Champeau (Pat Num 5,068,632).

Champeau discloses an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10, i.e. cable comprises electrical conductors and thus is capable of providing power). Specifically, with respect to claim 1, Champeau discloses an electrical wire (Fig 1) comprising at least one electrifiable conductor (1), first and second return conductors (5 & 6, respectively), which are respectively formed on opposing sides (top and bottom sides) of the at least one electrifiable conductor (1) such that the at least one electrifiable conductor (1) is at least substantially entrapped by the first and second conductors (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2). With respect to claim 2, Champeau discloses first and second insulating layers (2 & 3) which are formed between the at least one electrifiable conductor (1) and the first and second conductors (5 & 6, respectively, Fig 2). With respect to claim 3, Champeau discloses that the at least one electrifiable conductor (1) and the first and second return conductors (5 & 6) are substantially flat conductive layers having a stacked arrangement (Fig 2, Col 2, lines 50-64). With respect to claim 7, Champeau discloses that the first and second insulating layers (3 & 4) contact each other along a longitudinal edge of the electrical wire (Fig 1, Cols 3-4, lines 65-68 & 1-10 respectively). With respect to claim 8, Champeau discloses that the first and second insulating layers (3 & 4) are mechanically treated (formed roundly on the edges) to form a protective edge (4) of the electrical wire (1), wherein the protective edge (4) of the wire (1) is capable of inhibiting any foreign objects from

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penetrating the electrical wire (1) and contacting the at least one electrifiable conductor (1). With respect to claim 9, Champeau discloses that the cable (Fig 1) may further comprises an outer insulating layer (9, Fig 2) formed on the first and second return conductors (5 & 6, respectively). With respect to claim 24, Champeau discloses an electrical wire (Fig 4) comprising at least one electrifiable conductor (1), a first insulating layer (3 & 4) formed around the at least one electrifiable conductor (1), a return conductors (5 & 6, respectively), which are formed around (top and bottom sides) the first insulating layer (3 & 4), such that the at least one electrifiable conductor (1) is at least substantially entrapped by the return conductor (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2) and a second insulating layer (9) formed around the return conductor (5 & 6, Fig 4). With respect to claim 25, Champeau discloses that the cable (Fig 4) further comprises a grounding conductor (7) formed around the second outer insulating layer (9) and a third insulating layer (8) formed around the grounding conductor (7, Fig 4). With respect to claim 26, Champeau discloses that the at least one electrifiable conductor (1), the return conductor (5 & 6) have a rectilinear cross sectional geometries and the grounding conductor (7) has a substantially curvilinear shaped cross sectional geometry (Fig 4). With respect to claim 27, Champeau discloses that the at least one electrifiable conductor (1), the return conductor (5 & 6) and the grounding conductor (7) are formed in substantially parallel planes (horizontal parallel planes, Fig 4). With respect to claim 30, Champeau discloses a method of manufacturing an electrical wire (Fig 1) comprising forming at least one electrifiable conductor (1)

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and forming first and second return conductors (5 & 6) on opposing sides (top and bottom sides) of the at least one electrifiable conductor (1), such that the at least one electrifiable conductor (1) is at least substantially entrapped by the return conductor (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2). With respect to claims 31-32, Champeau discloses the electrical cable (1) of being utilized in an electrical current delivery system or electrical transmission system (Col 1, lines 39-48). With respect to claim 34, Champeau discloses that the electrifiable conductor (1) is a material that is a good conductor (Col 3, lines 60-65) and therefore is capable of delivering power to a load. With respect to claim 35, Champeau discloses that the electrifiable conductor (5 & 6) is a material that is a good conductor (Col 4, lines 10-15) and therefore is capable of carrying power away from a load. With respect to claims 36-37, Champeau discloses that the electrical wire (Fig 1) is capable of delivering electrical power (Col 1, lines 5-10, i.e. cable comprises electrical conductors as claimed and thus is capable of providing power), such as 120 or 240 VAC.

5. Claims 10-16 and 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Oppenberg (Pat Num 5,003,273). Oppenberg discloses a transmission cable (Figs 1-3) comprising signal and power conductors, which minimize crosstalk and are cheaper in cost (Col 2, lines 29-35). With respect to claim 10, Oppenberg discloses an electrical cable (Figs 1-2) comprising at least one electrifiable conductor (301) capable of delivering electrical power (Col 2, lines 29-35), first and second insulating layers (103 & 105) formed on opposing sides (top and bottom sides) of said at least one electrifiable conductor (301),

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first and second return conductors (top and bottom 201) formed on said first and second insulating layers (103 & 105), respectively, such that said at least one electrifiable conductor (301) is at least substantially entrapped by said first and second return conductors (top and bottom 201, Col 3, lines 45-50), third and fourth insulating layers (101 & 107) formed on said first and second return conductors (top and bottom 201), respectively, first and second grounding conductors (303 & 305) formed on said third and fourth insulating layers (101 & 107), respectively; and fifth and sixth insulating layers (top and bottom 108 as shown in Figure 2) formed on said first and second grounding conductors (303 & 305), respectively (Col 3, lines 50-55). With respect to claim 11, Oppenberg discloses that said first and second return conductors (top and bottom 201) are treated by at least one of a mechanical, chemical and thermal treatment (i.e. mechanically grounded) to form a protective longitudinal edge of said electrical wire (Fig 1), wherein said protective edge inhibits a foreign object from penetrating said electrical wire (Fig 1) and contacting said electrifiable conductor (301) without contacting one of said first and second return conductors (top and bottom 201, Col 3, lines 34-38). With respect to claim 12, Oppenberg discloses that the cable (Fig 1) comprises an area between said first and second return conductors (top and bottom 201) that forms a hot zone, wherein said at least one electrifiable conductor (301) is disposed within said hot zone (i.e. between the first and second return conductors; top and bottom 201). With respect to claim 13, Oppenberg discloses that said at least one electrifiable conductor (301) comprises a plurality of electrifiable conductors (301) which are formed in said

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hot zone (i.e. between the first and second return conductors; top and bottom 201) and comprise a plurality of horizontal segments (Fig 1) across a width of said wire (Fig 1) and a plurality of vertical segments across a thickness of said wire (all of the signal and return conductors are stacked vertically, Fig 1). With respect to claim 14, Oppenberg discloses that the at least one segment in said plurality of horizontal segments of said electrifiable conductors (301) are used to transmit a communication signals (Col 2, line 50), and wherein at least one segment in said plurality of horizontal segments (stacked vertically 201) of said electrifiable conductors (Fig 1) are used to supply one of AC and DC electrical power (i.e. DC power, see Col 3, lines 1-8). With respect to claim 15, Oppenberg discloses that the communication signal (301) comprises a data communication signal (i.e. circuit board data, Col 2, lines 5-11). With respect to claim 16, Oppenberg discloses that the capacitance (C) formed between said at least one electrifiable conductor (301) and said first and second return conductors (top and bottom 201) is given as $C = 1.5 * W * L * \epsilon / d$, where W is the width of the return and electrifiable conductors (301 & 201, respectively), L is the length of the return and electrifiable conductors (201 & 301 respectively), c is the dielectric constant for the first and second insulating layers, and d is the distance between each of the return and electrifiable conductors (Col 4, lines 32-33; capacitance =1.6-3.9 pf/inch). With respect to claim 18, Oppenberg discloses that the cable (Fig 1) is configured wherein an object penetrating an outer surface of said electrical wire (Fig 1) wound contacts one of said first and second grounding conductors (303 & 305) and one of said first and second return conductors (top and bottom 201),

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before contacting said at least one electrifiable conductor (301, i.e. the above stated layers completely surround the conductor 301, Col 3, lines 45-50). With respect to claim 19, Oppenberg discloses that the first and second grounding conductors (303 & 305) inhibit power transmission signals and load-generated electrical noise from being emitted from said electrical wire (Fig 1, Col 1, lines 34-38). With respect to claim 20, Oppenberg discloses that the first and second return conductors (top and bottom 201) and said first and second grounding conductors (303 & 305) comprise a rate of heat dissipation which is greater than a rate of heat dissipation for an round conductor, for a given cross-sectional area (i.e. rectangular conductors always give off greater heat dissipation than round conductors). With respect to claim 21, Oppenberg discloses that the electrical wire (Fig 1) comprises a direct current (DC) electrical wire (top and bottom 201) for supplying an electrical current having potential of greater than 0V (to be functional the cable has to supply some type of voltage (greater than 0V) for the circuit board to be operable, Col 3, lines 1-8). With respect to claim 22, Oppenberg discloses that the electrical wire (Fig 1) comprises surface mountable electrical wire (i.e. mounted on a circuit board, Col 1, lines 5-10). With respect to claim 23, Oppenberg discloses that the first and second return conductors (top and bottom 201) each have a thickness TG (5 mils), and said first and second grounding conductors (303 & 305) each have a thickness Tx (10 mils), and said electrifiable conductor (301) has a thickness TH (5 mils), such that a ratio of thicknesses $R = (TG + Tx)/TH$ is at least 1.00 (i.e. $5 + 10 = 15/5 = 3$, Col 4, lines 10-20 & 68 respectively).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 4, 28, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Champeau (Pat Num 5,068,632) in view of Farquhar et al (Pat Num 5,847,324, herein referred to as Farquhar). Champeau discloses an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10, i.e. cable comprises electrical conductors and thus is capable of providing power). Specifically, with respect to claim 4, Champeau discloses an electrical wire (Fig 1) comprising at least one electrifiable conductor (1), and first and

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second return conductors (5 & 6, respectively), having a distance (e) between the first and second return conductors (5 & 6, Fig 1). With respect to claim 28, Champeau discloses that the electrical cable (Fig 1) has a thickness.

However, Champeau doesn't necessarily disclose $\frac{1}{2}(e)$ (i.e. distance between the conductor and return conductors is $\frac{1}{2}(e)$) being less than 0.030 inches (claim 4), nor the wire having a thickness of no more than 0.050 inches (claim 28), nor the electrifiable conductor having a thickness of between 0.0004-0.020 inches (claim 39).

Farquhar teaches a high performance cable (Figs 1-2) having high strength properties and low dielectric properties without comprising one another (Col 6, lines 16-18). Specifically, with respect to claim 4, Farquhar teaches a cable (10) which comprising at least one electrifiable conductor (14), and first and second return conductors (top and bottom 22, respectively), having a distance between the first and second return conductors (top and bottom 22, Fig 1), which is the thickness of the insulating layer (18) separating them, wherein the thickness of the insulating layer (18) is 1mil (Col 4, lines 1-2, i.e. 1 mil =.001 inch). With respect to claim 28, Farquhar teaches that the electrical cable (10) has an overall thickness of less than 0.050 inches (Col 3, lines 1-5, (5.8 - 9.8 mils =0.006-0.01 inches). With respect to claim 39, Farquhar teaches that the electrifiable conductor (14) comprises a thickness between 0.0004-0.020 inches (i.e. 0.0028 inches, Col 3, lines 35-40).

With respect to claims 4, 28, and 39, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to

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modify the cable of Champeau to comprise the electrifiable and return conductor spacing configuration, overall cable thickness and electrifiable conductor configuration as taught by Farquhar because Farquhar teaches that such configurations a high performance cable (Figs 1-2) having high strength properties and low dielectric properties without comprising one another (Col 6, lines 16-18) and since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

9. Claims 5-6, 33, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Champeau (Pat Num 5,068,632) in view of Parker et al (Pat Num 5,554,825, herein referred to as Parker). Champeau discloses an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10, i.e. cable comprises electrical conductors and thus is capable of providing power). Specifically, with respect to claim 5, Champeau discloses an electrical wire (Fig 1) comprising at least one electrifiable conductor (1), and first and second return conductors (5 & 6, respectively), having a distance (e) between the first and second return conductors (5 & 6, Fig 1).

However, Champeau doesn't necessarily disclose the first and second conductors contacting each other along a longitudinal edge of the wire such that the conductor is completely entrapped by the first and second conductors (claim 5), nor the first and second conductors being treated to form a protective edge of the electrical wire wherein the protective edge of the wire is capable of inhibiting any foreign objects from penetrating the electrical wire and contacting the at least

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one electrifiable conductor (claim 6), nor the first and second conductors substantially surrounding a periphery of said at least one electrifiable conductor (claims 33 & 40).

Parker teaches a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35). Specifically, with respect to claim 5, Parker discloses a cable (Fig 1) comprising at least one electrifiable conductor (2), being surrounded by a flat flexible shield layer (7), that may comprise a first and second layer (Col 4, lines 44-47), wherein the opposite sides of the shield (7) may be superposed (i.e. welded) to each other, thereby completely entrapped by the first and second conductors of the shield layer (7, Fig 1). With respect to claim 6, Parker discloses that the first and second conductors of the shield layer (7) are treated (i.e. superposed) to form a protective edge of the electrical wire (1) wherein the protective edge of the wire (1) is capable of inhibiting any foreign objects from penetrating the electrical wire (1) and contacting the at least one electrifiable conductor (2, i.e. the shield completely surrounds the conductor and therefore protects the conductor (1)). With respect to claims 33 & 40, Parker discloses a cable (Fig 1) comprising at least one electrifiable conductor (2), being surrounded by a flat flexible shield layer (7), that may comprise a first and second layer (Col 4, lines 44-47), wherein the opposite sides of the shield (7) may be superposed (i.e. welded) to each other, thereby surrounding a periphery of the at of the electrifiable conductor (1) by the first and second conductors of the shield layer (7, Fig 1).

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With respect to claims 5-6, 33, and 40, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise the return conductor configuration as taught by Parker because Parker teaches that such a configuration provides a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35) and since it has been held that forming in one piece an article which has been formerly been formed in two or more pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S 164 (1893).

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Champeau (Pat Num 5,068,632) in view of Schreiber et al (Pat Num 4,845,311, herein referred to as Scheiber). Champeau discloses an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10, i.e. cable comprises electrical conductors and thus is capable of providing power). Specifically, with respect to claim 29, Champeau discloses an electrical wire (Fig 1) comprising at least one electrifiable conductor (1), and first and second return conductors (5 & 6, respectively), and a grounding conductor (7), wherein the grounding conductor (7) has an oval configuration (Fig 2).

However, Champeau doesn't necessarily disclose the electrifiable conductor or the return conductor having an oval shape (claim 29).

Scheiber teaches a cable (Figs 1-19) that is smaller in size, has superior flexibility, and decrease signal loss due to radiation out (Col 6, lines 33-34). Specifically, Scheiber teaches a cable (10) comprising at least one electrifiable

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conductor (60), and first and second return conductors (top and bottom 74), and a grounding conductor (104), wherein the interior components of the cable may have any shape such as an oval shape (Col 6, lines 48-55).

With respect to claim 29, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise the oval shaped conductor configuration as taught by Scheiber because Scheiber teaches that such a configuration provides a cable (Figs 1-19) that is smaller in size, has superior flexibility, and decrease signal loss due to radiation out (Col 6, lines 33-34) and since it has been held that a change in form cannot sustain patentability where involved is only extended application of obvious attributes from a prior art. *In re Span-Deck Inc. vs. Fab-Con Inc.* (CA 8, 1982) 215 USPQ 835.

11. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Champeau (Pat Num 5,068,632) in view of Rimmer (Pat Num 6,218,622).

Champeau discloses an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10, i.e. cable comprises electrical conductors and thus is capable of providing power). Specifically, with respect to claim 40, Champeau discloses an electrical wire (Fig 1) comprising at least one electrifiable conductor (1), and first and second return conductors (5 & 6, respectively), wherein the first and second return conductors (5 & 6) cross sectional area is greater than the cross sectional area of the at least one electrifiable conductor (1).

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However, Champeau doesn't specifically disclose the first and second return conductors having a cross sectional area equal to than the cross sectional area of the at least one electrifiable conductor (claim 38).

Rimmer discloses an electrical cable (Figs 1-6) an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10, i.e. cable comprises electrical conductors and thus is capable of providing power), as disclosed above with respect to claim 1, which is easy to handle (Col 4, lines 4-10). Specifically, with respect to claim 40, Rimmer discloses an electrical wire (Fig 2) comprising at least one electrifiable conductor (1), and first and second return conductors (4 & 5, respectively), wherein the first and second return conductors (5 & 6) cross sectional area is greater than the cross sectional area of the at least one electrifiable conductor (1, Col 4, lines 5-10).

With respect to claim 38, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise disclose the first and second return conductors having a cross sectional area equal to than the cross sectional area of the at least one electrifiable conductor configuration as taught by Rimmer because Rimmer teaches that such a configuration provides capable of delivering electrical power (Col 1, lines 5-10, i.e. cable comprises electrical conductors and thus is capable of providing power), as disclosed above with respect to claim 1, which is easy to handle (Col 4, lines 4-10) and since it has been held that a change in form cannot sustain patentability where involved is only extended

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application of obvious attributes from a prior art. *In re Span-Deck Inc. vs. Fab-Con Inc.* (CA 8, 1982) 215 USPQ 835.

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oppenberg (Pat Num 5,003,273) in view of Parker et al (Pat Num 5,554,825, herein referred to as Parker). Oppenberg discloses a transmission cable (Figs 1-3) comprising signal and power conductors, which minimize crosstalk and are cheaper in cost (Col 2, lines 29-35).

However, Oppenberg doesn't necessarily disclose an adhesive for bonding adjacent insulating layer and the conductors of the electrical cable (claim 17).

Parker teaches a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35). Specifically, Parker discloses a cable (Fig 1) comprising at least one electrifiable conductor (2), being surrounded by a pair of insulating layers (3), and a flat flexible shield layer (7), wherein adhesive is utilized for bonding adjacent insulating layer (3) and the conductors (2 & top and bottom 7) of the electrical cable (1, Col 2, lines 58-63).

With respect to claim 17, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Oppenberg to utilize adhesive for bonding adjacent layers as taught by Parker because Parker teaches that such a configuration provides a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35).

Response to Arguments

13. Applicant's arguments filed June 22, 2005 have been fully considered but they are not persuasive. The applicant argues the following:

- A) Champeau doesn't teach or suggest at least one electrifiable conductor is at least substantially entrapped by the first and second return conductors and therefore cannot anticipate the claimed invention.
- B) Oppenberg doesn't teach or suggest at least one electrifiable conductor is at least substantially entrapped by the first and second return conductors and therefore cannot anticipate the claimed invention.
- C) Farquhar and Champeau are completely unrelated, and thus no person of ordinary skill in the art would have considered combining these disparate references, and therefore the examiner has engaged in impermissible hindsight because there is no motivation or suggestion to combine and as a result a proper prima facie case of obviousness has not be established.
- D) Parker and Champeau are completely unrelated, and thus no person of ordinary skill in the art would have considered combining these disparate references, and therefore the examiner has engaged in impermissible hindsight because there is no motivation

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or suggestion to combine and as a result a proper prima facie case of obviousness has not be established.

E) Schreiber and Champeau are completely unrelated, and thus no person of ordinary skill in the art would have considered combining these disparate references, and therefore the examiner has engaged in impermissible hindsight because there is no motivation or suggestion to combine and as a result a proper prima facie case of obviousness has not be established.

F) Champeau, Oppenberg, Farquhar, Parker, and Schreiber discloses at least one electrifiable conductor for delivering electrical power.

With respect to argument A, the examiner respectfully traverses. Firstly, it must be stated that the examiner is required to give the claims the broadest reasonable interpretation. Specifically, MPEP 2111 states:

During patent examination, the pending claims must be "given *their< broadest reasonable interpretation consistent with the specification." > In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000).< Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

Secondly, the term "substantially" is considered to be a relative, is often used in conjunction with another term to describe a particular characteristic of the claimed invention and is a broad term. In re Nehrenberg, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). Specifically, what actually denotes being substantially

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entrapped?. The courts have been consistent that the recitation of the term "substantially" implies clearly that something is less than exact correspondence is required. *Performed Line Products Co. v. Fanner Mfg. Co.* (DC Ohio) 124 USPQ 288. Given the guidelines above, it is submitted that Champeau and Oppenberg both disclose at least one electrifiable conductor being at least substantially entrapped (i.e. not completely entrapped but entrapped to a higher degree of 50% as illustrated in Figures 4 & 2, respectively) by the first and second return conductors. While Champeau and Oppenberg don't disclose the at least one electrifiable conductor being completely entrapped, it is respectfully submitted, that "substantially entrapped", doesn't denote being "completely surrounded". A few of the applicant's drawings, such as Figure 2B, do not illustrate the at least one electrifiable conductor is completely surrounded by the first and second conductors. Therefore, if the applicant intends to claim "completely surrounded", then he/she should state such directly in the claims. Given the above comments above, it is respectfully submitted that the 35 USC 102(b) rejections as stated above are proper and just.

With respect to argument C, the examiner respectfully traverses. In order to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The

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examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching or suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Champeau clearly discloses an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10) comprising at least one electrifiable conductor (1), first and second return conductors (5 & 6, respectively), which are respectively formed on opposing sides (top and bottom sides) of the at least one electrifiable conductor (1) such that the at least one electrifiable conductor (1) is at least substantially entrapped by the first and second conductors (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2).

While Champeau clearly illustrates a distance between the conductor and return conductors and the electrifiable conductor and the overall wire having a thickness, Champeau doesn't necessarily disclose $\frac{1}{2}$ (e) (i.e. distance between the conductor and return conductors is $\frac{1}{2}(e)$) being less than 0.030 inches (claim 4), nor the wire having a thickness of no more than 0.050 inches (claim 28), nor the electrifiable conductor having a thickness of between 0.0004-0.020 inches (claim 39). The courts have been consistent that finding optimum ranges and values are routine skill in the art. Specifically, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). However, to

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support the legal findings, the examiner relied on Farquhar for its teaching of the exact ranges and values of the claimed cable. Specifically, Farquhar teaches a high performance cable (Figs 1-2) capable of providing electrical power and having high strength properties and low dielectric properties without comprising one another (Col 6, lines 16-18) comprising at least one electrifiable conductor (14), and first and second return conductors (top and bottom 22, respectively), having a distance between the first and second return conductors (top and bottom 22, Fig 1), which is the thickness of the insulating layer (18) separating them, wherein the thickness of the insulating layer (18) is 1mil (Col 4, lines 1-2, i.e. 1 mil =.001 inch), having an overall thickness of less than 0.050 inches (Col 3, lines 1-5, (5.8 - 9.8 mils =0.006-0.01 inches) and the electrifiable conductor (14) having a thickness between 0.0004-0.020 inches (i.e. 0.0028 inches, Col 3, lines 35-40). Based on the teaching of Farquhar, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise the electrifiable and return conductor spacing configuration, overall cable thickness and electrifiable conductor configuration as taught by Farquhar because Farquhar teaches that such configuration provides a high performance cable (Figs 1-2) having high strength properties and low dielectric properties without comprising one another (Col 6, lines 16-18) and such as modification would involves only routine skill in the art.

Therefore, there clearly exist a motivation for combining the Champeau and Farquhar references in order to provide the cable of Champeau with high

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strength properties and low dielectric properties without comprising one another (Col 6, lines 16-18). Secondly, there exist some reasonable expectation of success, as both disclose electrical cables comprising at least one conductor it appears that Champeau would perform equally well with or without the modification. Thirdly, all of the claimed elements are disclosed in the modified Champeau reference. Therefore, clearly a proper prima facie case of obviousness has been established. While the applicant may feel the examiner has engaged in impermissible hindsight, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In light of the above comments, the examiner respectfully submits that the 35 USC 103(a) rejection, utilizing Champeau and Farquhar is proper and just.

With respect to argument D, the examiner respectfully traverses. As stated above, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching or suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.

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1992). Champeau clearly discloses an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10) comprising at least one electrifiable conductor (1), first and second return conductors (5 & 6, respectively), which are respectively formed on opposing sides (top and bottom sides) of the at least one electrifiable conductor (1) such that the at least one electrifiable conductor (1) is at least substantially entrapped by the first and second conductors (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2).

While Champeau clearly discloses first and second conductors, Champeau doesn't necessarily disclose the first and second conductors completely entrapping the at least one electrifiable conductor (claim 5), nor the first and second conductors being treated to form a protective edge of the electrical wire wherein the protective edge of the wire is capable of inhibiting any foreign objects from penetrating the electrical wire and contacting the at least one electrifiable conductor (claim 6), nor the first and second conductors substantially surrounding a periphery of said at least one electrifiable conductor (claims 33 & 40).

The examiner has relied upon Parker for it's teaching of a cable comprising a flexible shield providing the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35) comprising at least one electrifiable conductor (2), being surrounded by a flat flexible shield layer (7), that may comprise a first and second layer (Col 4, lines 44-47), wherein the opposite sides of the shield (7) may be superposed (i.e. welded) to each other, thereby completely entrapped by the first and second

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conductors of the shield layer (7, Fig 1). Based, on the teaching of Parker, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise the return conductor configuration as taught by Parker because Parker teaches that such a configuration provides a cable comprising a flexible shield that provides the overall cable with superior flexibility and overall protection of the inner conductors from EMI (Col 1, lines 25-35) and since it has been held that forming in one piece an article which has been formerly been formed in two or more pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S 164 (1893). Clearly there exist a motivation for modifying the first and second conductors of Champeau as taught by Farquhar because Farquhar teaches that such a modification would provides the cable of Champeau with superior flexibility and overall protection of the inner conductors from EMI. Secondly, there exist some reasonable expectation of success, as both disclose electrical cables comprising at least one conductor it appears that Champeau would perform equally well with or without the modification. Thirdly, all of the claimed elements are disclosed in the modified Champeau reference. Therefore, clearly a proper prima facie case of obviousness has been established. While the applicant may feel the examiner has engaged in impermissible hindsight, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include

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knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In light of the above comments, the examiner respectfully submits that the 35 USC 103 (a) rejection, utilizing Champeau and Parker is proper and just.

With respect to argument E, the examiner respectfully traverses. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching or suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Champeau clearly discloses an electrical cable (Figs 1-4) capable of delivering electrical power (Col 1, lines 5-10) comprising at least one electrifiable conductor (1), first and second return conductors (5 & 6, respectively), which are respectively formed on opposing sides (top and bottom sides) of the at least one electrifiable conductor (1) such that the at least one electrifiable conductor (1) is at least substantially entrapped by the first and second conductors (5 & 6, respectively, i.e. on top and bottom surfaces, Fig 2).

While the Champeau reference discloses that the conductor may have a round or rectangular shape, Champeau doesn't necessarily disclose the electrifiable conductor or the return conductor having an oval shape (claim 29).

The courts have also been consistent that a change in shape is within the knowledge of one of ordinary skill in the art, the examiner has relied on Scheiber

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for its exact teaching of an oval conductor. Specifically, Scheiber teaches a cable (Figs 1-19) that is smaller in size, has superior flexibility, and decrease signal loss due to radiation out (Col 6, lines 33-34). comprising at least one electrifiable conductor (60), and first and second return conductors (top and bottom 74), and a grounding conductor (104), wherein the interior components of the cable may have any shape such as an oval shape (Col 6, lines 48-55).

Based on the teaching of Scheiber, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of Champeau to comprise the oval shaped conductor configuration as taught by Scheiber because Scheiber teaches that such a configuration provides a cable (Figs 1-19) that is smaller in size, has superior flexibility, and decrease signal loss due to radiation out (Col 6, lines 33-34) and since it has been held that a change in form cannot sustain patentability where involved is only extended application of obvious attributes from a prior art. *In re Span-Deck Inc. vs. Fab-Con Inc.* (CA 8, 1982) 215 USPQ 835. Clearly there exist a motivation for modifying the conductor of Champeau to be oval and as taught by Scheiber because Scheiber teaches that such a configuration provides a cable (Figs 1-19) that is smaller in size, has superior flexibility, and decrease signal loss due to radiation out (Col 6, lines 33-34). Secondly, there exist some reasonable expectation of success, as both disclose electrical cables comprising at least one conductor it appears that Champeau would perform equally well with or without the modification. Thirdly, all of the claimed elements are disclosed in the modified Champeau reference. Therefore, clearly a proper prima facie case of

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obviousness has been established. While the applicant may feel the examiner has engaged in impermissible hindsight, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In light of the above comments, the examiner respectfully submits that the 35 USC 103(a) rejection, utilizing Champeau and Schreiber is proper and just.

With respect to argument F, the examiner respectfully traverses. It should first be noted that the claim language "for delivering electrical power", is functional language, specifically intended use. It has been long held that a manner in which as claimed apparatus is intended to be employed doesn't differentiate the claimed apparatus from the prior art apparatus satisfying the claimed structural limitations. If the prior art reference discloses all of the claimed structure of the claimed invention, then the prior art reference are capable of performing the same claimed functions. Specifically, MPEP instructs the examiner as follows:

APPARATUS CLAIMS MUST BE STRUCTU-RALLY DISTINGUISHABLE
FROM THE PRIOR ART

>While features of an apparatus may be recited either structurally or functionally, claims<
directed to >an< apparatus must be distinguished from the prior art in terms of structure

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rather than function. >In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); < In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original).

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and In re Otto, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). In light of the above, it is respectfully submitted that Champeau, Oppenberg, Farquhar, Parker, and Schreiber, either alone, or in combination, teach at least one electrifiable conductor capable of delivering electrical power.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

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See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

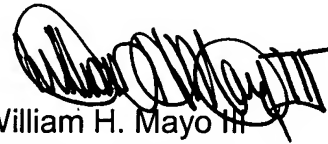
Communication

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Mayo III whose telephone number is (571)-272-1978. The examiner can normally be reached on M-F 8:30am-6:00 pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272-2800 ext 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William H. Mayo III
Primary Examiner
Art Unit 2831

WHM III
August 12, 2005